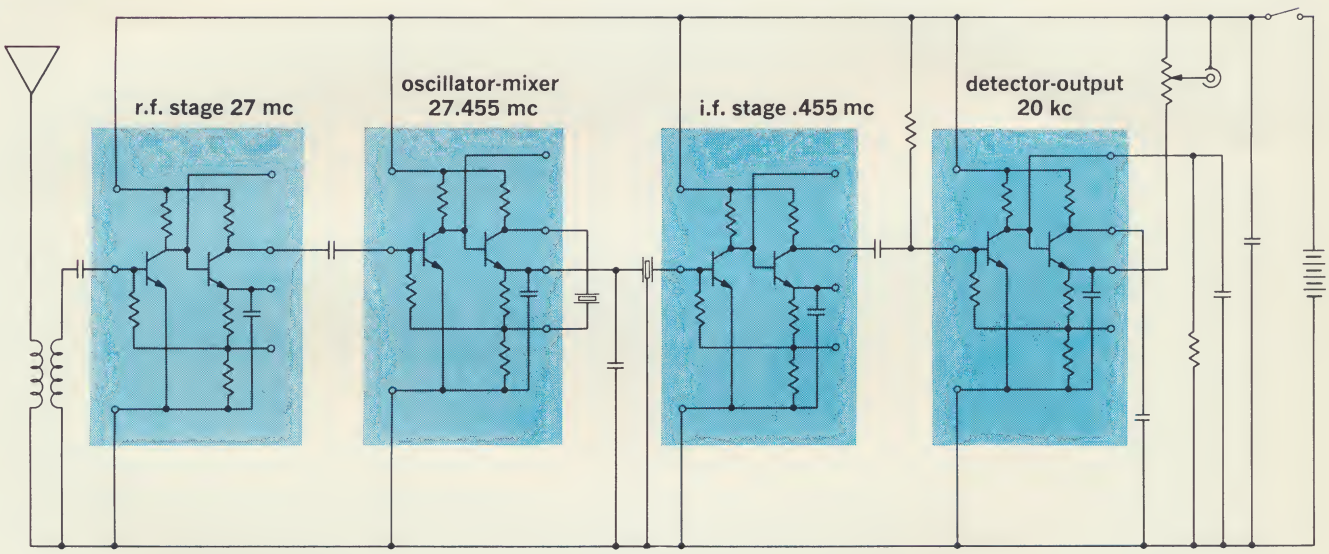
Cut communication system cost– use this universal Westinghouse IC amplifier in many stages



The Westinghouse WM1146Q wide-band integrated amplifier is a true "linear building block." You can design many communications and radar systems so that most amplifier functions are well served by this one wide-band unit. You'll eliminate many special-purpose amplifiers... simplify ordering and inventory... save by buying in larger quantities. The WM1146Q costs no more than special-purpose limited-frequency devices.

The WM1146 is: 1) a wide-band RF amplifier which may be cascaded for very high gains; 2) an oscillator-mixer when used with external crystal; 3) a 0.455, 10.7, 30, or 60 mc IF amplifier with AGC capabilities when used with frequency selective elements; 4) a detector and output stage.

Features of the WM1146Q include: usable range DC to 100 mc • gain 16 db @ 60 mc • 6 VDC to 12 VDC operation • low power dissipation (9 ma with 6 V power supply) • only one power supply needed • every unit subjected to +150°C storage bake, three cycles of thermal shock, 30,000 G centrifuge, gross and helium hermeticity tests.

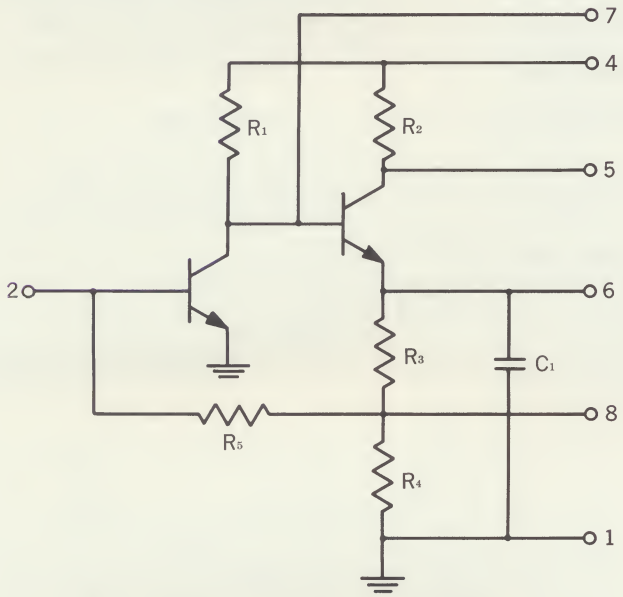
Get technical data now, and cut your system costs. Write Westinghouse Electric Corporation, Molecular Electronics Division, Box 7377, Elkridge, Maryland 21227.

J09124

You can be sure if it's Westinghouse

This advertisement appears in:
Electronic Design–November 22; EEE–Circuit Design Engineering–November and December
Rescaled for: Electronic News–October 11, 1965
PO 5-6890 Ad J-09124

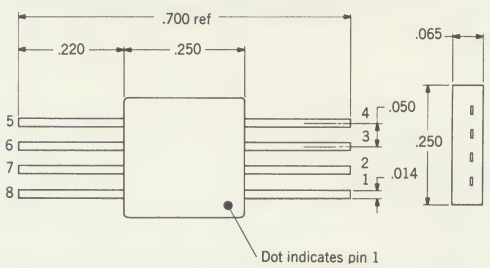
Equivalent circuit



R_1 = 2.2 K
R_2 = 1.3 K
R_3 = 1.8 K
R_4 = 600
R_5 = 3.9 K
C_1 = 10 pf
Resistor values ±20%

Package

Q style FLAT-PAK · 0.25 grams



Pin connections

1 ground
2 input
3 no connection
4 supply voltage
5 output collector
6 output emitter
7 AGC
8 feedback network

Description

The WM 1146 is a direct-coupled two-stage negative feedback amplifier using shunt peaking. The negative feedback provides very stable operation over a wide temperature range. The shunt peaking circuit provides increased bandwidth. The output may be taken from either pin 5 (collector) or pin 6 (emitter), depending on the specific application. Pin 7 is available for the purpose of applying AGC or external tuning networks.

Design features

- Usable range DC to 100 MC
- Gain 16 db @ 60 MC
- 6 VDC to 12 VDC operation
- Low power dissipation
- Only one power supply required

Reliability assurance

EVERY unit receives

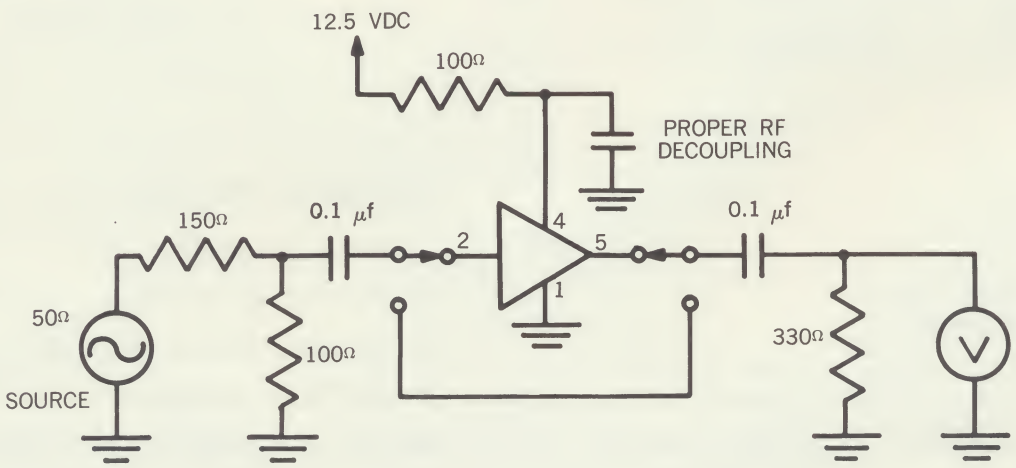
- High temperature storage bake at +150°C
- 3 cycles of thermal shock −55°C to +150°C
- 20,000 G centrifuge
- Gross and helium hermeticity tests

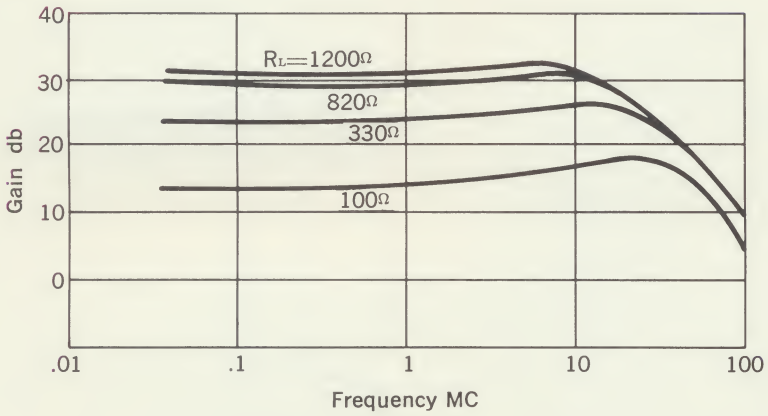
Absolute maximum ratings①

Parameter	Symbol	Value	Units
power supply	V_{cc}	+16	VDC
storage temp.	T_{stg}	—65 to 175	°C
operating temp.	T_{opg}	—55 to 125	°C

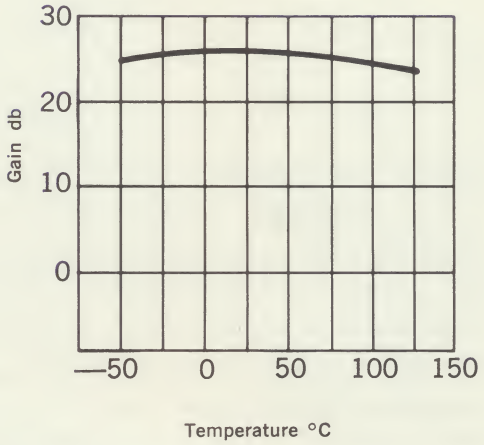
Parameter	Symbol	Min.	Typical	Max.	Units
Static electrical characteristics for Vcc = +12 volts and at 25° C					
insertion power gain②	P_g	20	23		db
admittance parameters (in terms of R and C)					
Pin 2	R_{11}		82		Ω
(Pin 5)	R_{22}		624		Ω
Pin 2	C_{11}		14.8		pf
(Pin 5)	C_{22}		13.2		pf
impedance parameters	R_{11}		83		Ω
	R_{22}		1900		Ω
	C_{11}		22		pf
	C_{22}		15		pf
upper frequency rolloff (—3db)②	f_h	35	40		mc
noise figure③	N.F.		4		db
output swing, pin 5			1.1		V p-p
output swing, pin 6			4.0		V p-p
power supply current	I_{cc}		4.0	7.0	ma

① Limiting values beyond which the serviceability of the unit may be impaired.
② Measured in the test circuit shown below with $R_L = 330\ \Omega$.
③ Measured with 100Ω source resistor, bandwidth > 100 kc.

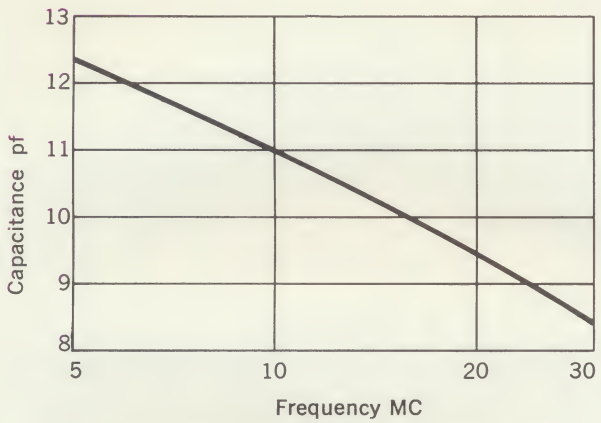




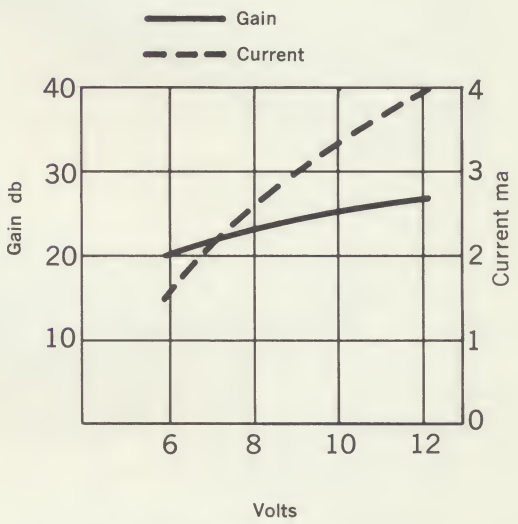
GAIN VS. FREQUENCY



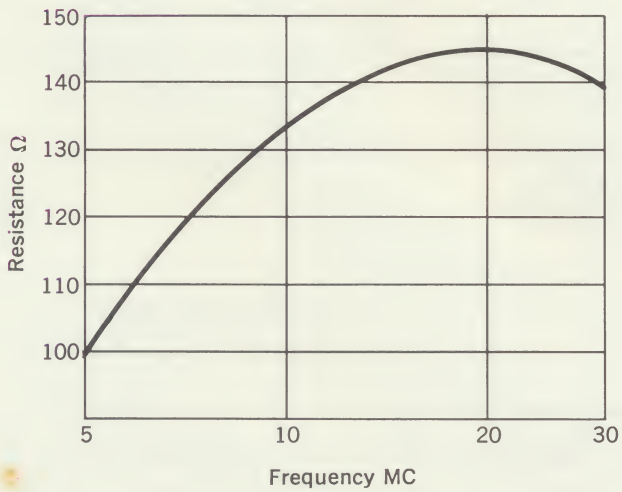
GAIN VS. TEMPERATURE



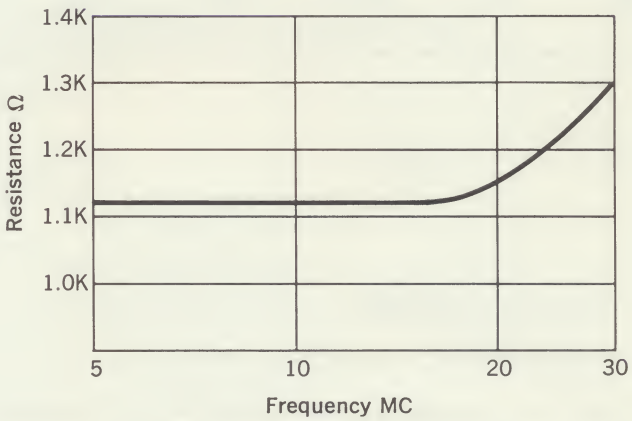
OUTPUT CAPACITANCE VS. FREQUENCY



GAIN AND BLOCK CURRENT
VS. BLOCK VOLTAGE



INPUT RESISTANCE VS. FREQUENCY



OUTPUT RESISTANCE VS. FREQUENCY

Here's a universal integrated RF amplifier with 30 db gain DC to 10 mhz and usable gain to beyond 100 mhz.

Use it for military, industrial, or commercial applications.

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In integrated circuits, the winning chips come from Westinghouse

#8-1265

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